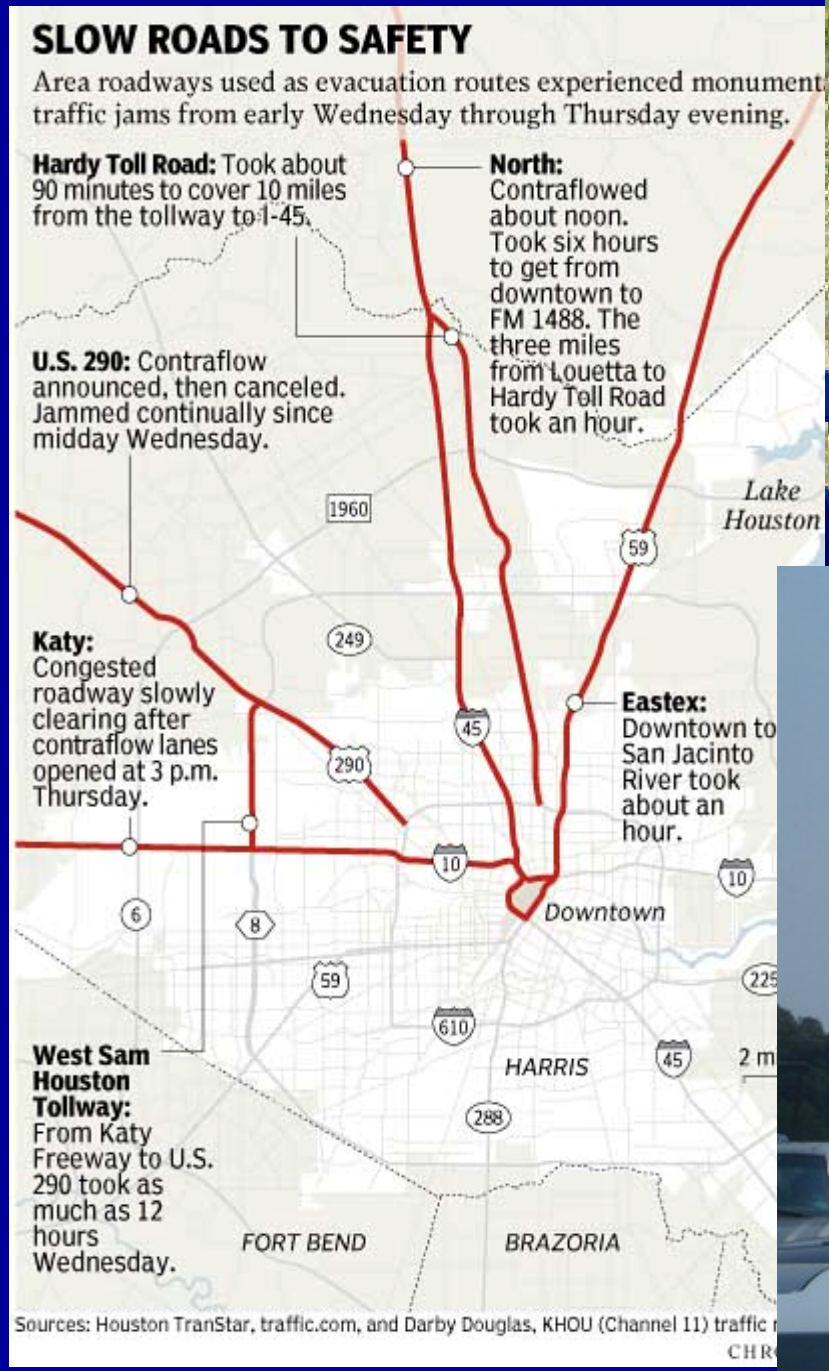
“The future is upon us.”

-FAA Unmanned Aircraft Program Office rep, Washington, D.C., Sept. 2007

-the introduction of UAS into the national airspace



Sept. 2005 – Hurricane Rita -catalyst for UAS interest in Houston-

FAA/HPD UAS TEST PROJECT

- **February 2007** – Houston Mayor Bill White notes, associated with the Hurricane Rita evacuation, the need for additional airborne surveillance, and envisions the usefulness of UAS for disaster planning/response.

- **August 2, 2007** – F.A.A. representatives meet with Mayor White and others in Houston, to present their plan for "*A Test Project for the Houston Police Department and the Federal Aviation Administration*". Two police departments are chosen for UAS test projects, Houston PD and Miami-Dade.

- **September 2007** – Insitu, Inc., the developer of the 'ScanEagle' UAS, in partnership with Boeing, commits to partnering with the city of Houston/HPD for the planned FAA/Houston-based UAS test project.

- **November 16, 2007** – Field demo of the Insitu 'Insight' UAS west of Houston, monitored by the F.A.A., (and ATC, via transponder/radar).

- **April 1-3, 2008** – FAA/HPD/Insitu "Operations Review" and "Technical Review" meetings in the Washington, D.C. offices of the FAA Unmanned Aircraft Program Office.

- **Summer 2008** – Planned Houston-based UAS test flights, using the Insitu 'Insight' UAS.

Houston-based UAS test project objectives

- **FAA** – To gather data to determine if the identified mitigations reduce risk to an acceptable level.

- **HPD** – To determine the utility and affordability of the unmanned aircraft system.

Insitu, Inc. ‘INSIGHT’

• Endurance	20+ hours
• Max. horizontal speed	75 knots
• Cruise speed	48 knots
• Ceiling	19,500 ft.
• Wing span	10.2 ft.
• Length	3.9 ft.
• Empty weight	28.7 lbs.
• Max. take-off weight	44 lbs

November 16, 2007
UAS Demo

 # 1
PRIORITY:
SAFETY

November 16, 2007 Houston-Based UAS Demo

- COA Requirements
  - **Pilots**: “Sufficient expertise”- Understanding of Federal Aviation Regulations; Current, **3rd class**, (or higher), airman medical certificate; three (3) qualified proficiency events within the preceding 90 days; (Trained, experienced Insitu pilots were used for the demo.)
  - **Observers**: Ground-based or airborne; “sufficient training”- ability to communicate turning instructions required to stay clear of conflicting traffic ; possess **3rd class**, (or higher) airman medical certificate; (HPD helicopter pilots were used as observers.)

- Visual Flight Rules (VFR); During daylight hours.
- Operations maintained within a 2 nautical mile radius of FAA-approved coordinates, at or below 1,000 feet Above Ground Level (AGL).
- PIC to maintain direct 2-way communication with ATC, with the ability to maneuver the UA per instructions.
- Operation at a distance within which see-and-avoid responsibilities can be exercised.
- Rural location; Using only the minimum amount of fuel for safe conduct of the planned flight operation.
- Nearby private and public aircraft sites were notified of the date/time/location/altitude of the UAS demo.

Lost Link Procedures

- Prior to launch, an autonomous lost link procedure is programmed.
- If communications are lost, and not re-established prior to a set time period, the UAS will follow an automatic return-to-base flight plan and belly-land at a specified location.
- (These parameters can be modified in flight, if necessary.)


INSITU
SUPERWEDGE UAV


INSITU
INSITU
INSITU

Test Project Challenges

- **Training** – time required for HPD helicopter pilots to become proficient.
- **Review of utility** – 'mobility', routine vs. disaster response/recovery; search and rescue; Homeland Security, (Port of Houston, petrochemical complexes, etc.); fire-fighting; toxic environments.
- **Work with ATC** – test the transponder, (and ground-based radar).
- **Gathering data, for the FAA, of national significance: <u>This is a project of national significance, based in Houston</u>;** test safety of UAS/reliability/adequacy of safety measures/potential for RF interference.
- **Having proven their value in the military field of operations, with thousands of flight hours, can UAS now be safely incorporated into the national airspace for public safety applications?**